

Health Risk Behaviors among Missouri Middle and High School Students

Results from the 2017 Youth Risk Behavior Survey and
2017 Youth Tobacco Survey



Missouri Department of Health and Senior Services
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Introduction

The Missouri Department of Health and Senior Services, in collaboration with the Missouri Department of Elementary and Secondary Education and the U.S. Centers for Disease Control and Prevention (CDC), conducts biennial (every odd year) surveys of public middle and high school students to track progress in efforts to reduce health risk behaviors among youth. Information about the methodology for the Youth Risk Behavior Survey (YRBS) and Youth Tobacco Survey (YTS) may be found on page 24.

This report summarizes key findings from the 2017 YRBS and 2017 YTS including results from previous years that demonstrate changes over time. Previous years of YRBS data may be found on the CDC website at <https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>. Previous reports of Missouri YRBS and YTS data may be found at <http://www.health.mo.gov/data/index.php>.

2017 Key Findings

The good news, during the decade of 2007-2017:

- ✓ Participation in at least 60 minutes of physical activity on five or more days of the week increased significantly among high school students (43.5% to 46.2%)
- ✓ The percentage of middle school students who went to physical education classes daily significantly increased from 26.2 percent to 46.4 percent
- ✓ The percentage of middle (33.4% to 20.2%) and high school students (32.8% to 21.1%) who drank non-diet soda or pop one or more times per day during the past seven days declined significantly between 2007 and 2015
- ✓ There has been a significant decline in ever trying cigarettes among middle (26.4% to 10.3%) and high school (50.9% to 28.6%) students
- ✓ Current cigarette smoking declined significantly among middle (6.9% to 3.5%) and high school (23.8% to 9.2%) students from 2007 to 2017 as well as a significant decline in the current use of electronic vapor products among high school students from 2015 (22.0%) to 2017 (10.9%)
- ✓ The percentage of high school students who had sexual intercourse with one or more people during the past three months (current intercourse) declined significantly from 2007 (40.6%) to 2015 (27.5%)
- ✓ In 2017, about 6 out of 10 (62.0%) high school students agreed or strongly agreed that teachers cared about them

Areas of concern:

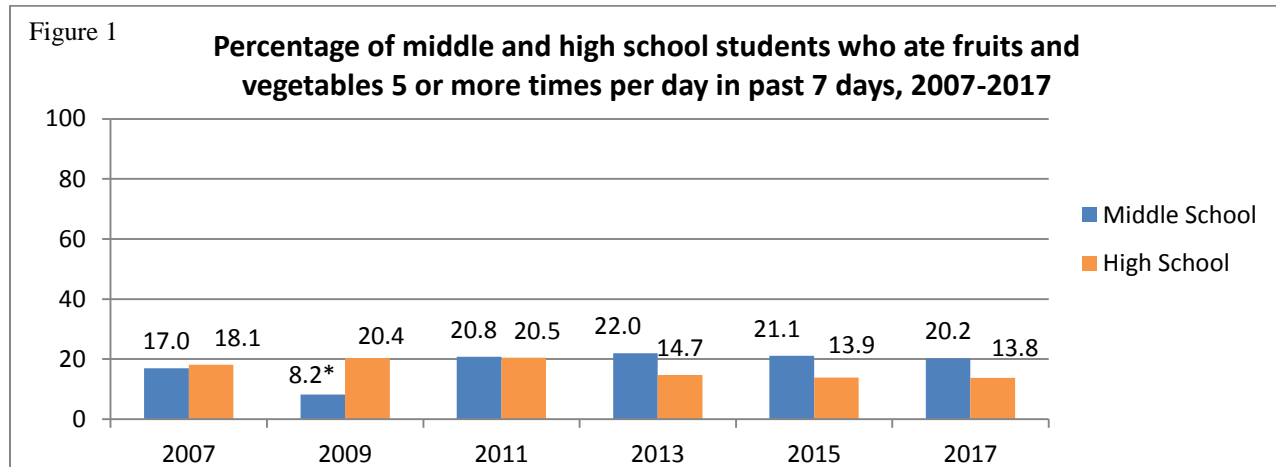
- About one-third (33.8%) percent of middle school students and 42.3 percent of high school students played video or computer games or used a computer for other than school work for three or more hours per day
- The percentage of high school students who were obese increased significantly from 11.9 percent in 2007 to 16.6 percent in 2017
- In 2017, a greater proportion of high school (39.9%) and middle school students (14.4%) had ever tried electronic vapor products than had tried smoking cigarettes (28.6% high school and 10.3% middle school students)
- The higher the grade level the higher the ever and current use of electronic vapor products
- About half of middle (44.6%) and high school (50.6%) students were exposed to secondhand tobacco smoke in public places during the past seven days
- In 2017, about one-third (31.4%) of middle school students and 23.3 percent of high school students were bullied on school property during the past 12 months
- Current marijuana use has consistently been at about 20 percent among high school students
- High school students at all grade levels were taking prescription drugs without a doctor's prescription and the percentage increased by grade level
- Among high school students that drove in the past 30 days, about one-half texted or e-mailed (46.4%), or talked on a cell phone while driving (53.1%)
- About one in twenty (5.3%) high school students drove while drinking alcohol in the past 30 days
- In 2017, 15.7 percent of high school students rode on one or more days of the past 30 days with someone driving who had been drinking alcohol
- A significantly higher percentage of high school females (17.5%) than males (8.1%) used an indoor tanning device in the past 12 months
- In 2017, more than one-fourth (27.8%) of high school males on one or more of the past 30 days carried a weapon
- In 2017, a significantly higher percentage of high school females (13.3%) than males (7.1%) had ever been physically forced to have sexual intercourse
- One in five (20.9%) high school students considered suicide, 15.5 percent made a plan to commit suicide, 8.6 percent attempted suicide, and 2.9 percent of these attempts resulted in injury, poisoning or overdose that had to be treated by a doctor or nurse in the 12 months prior to the survey

Health Risk Behaviors among Missouri Middle and High School Students

Dietary Behaviors

Fruit and vegetable consumption

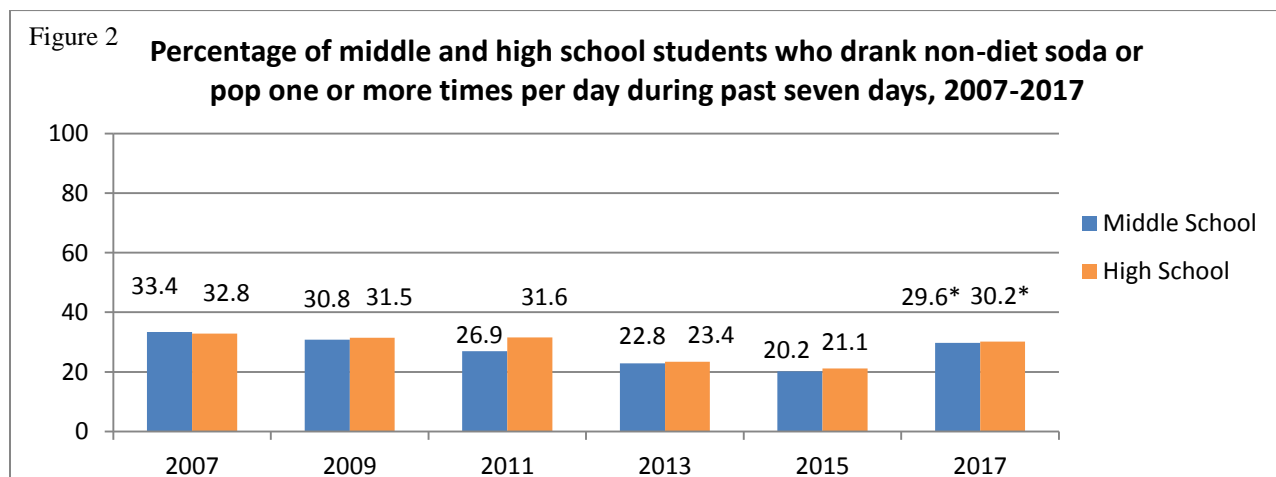
The percentage of middle and high school students who ate fruits and vegetables five or more times per day during the past seven days has not changed significantly since 2007 (Figure 1).



*Different question: Five or more servings of fruits and vegetable eaten the day before the survey.

Non-diet soda and sugar-sweetened beverage consumption

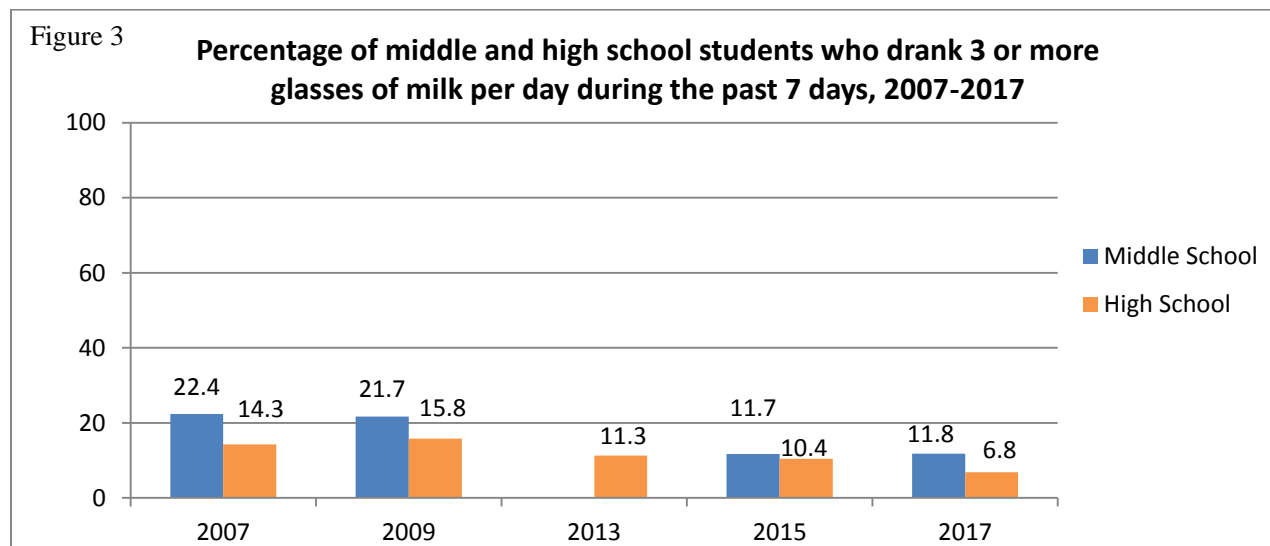
The percentage of middle and high school students who drank non-diet soda or pop one or more times per day during the past seven days declined significantly between 2007 and 2015. In 2017, the question changed to include sports drinks, energy drinks, flavored milk and other sweetened beverages (Figure 2).



*Different question: Combination of two questions from the 2015 survey.

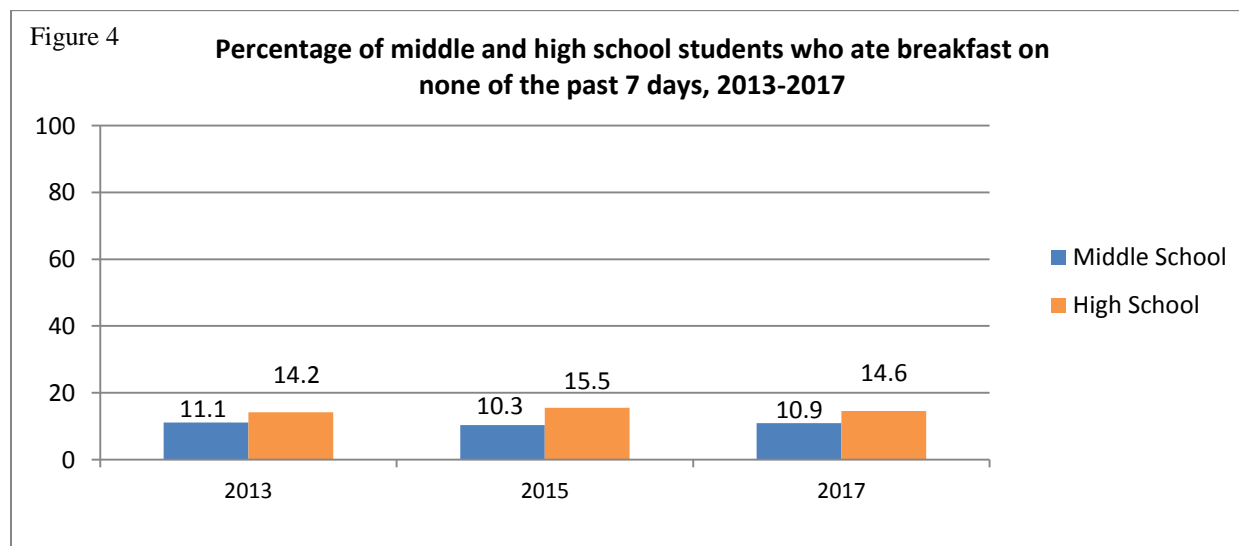
Milk consumption

The percentage of middle and high school students who drank three or more glasses of milk per day during the past seven days declined significantly since 2007 (Figure 3). Data were not available for 2011 and for middle school students in 2013.



Breakfast consumption

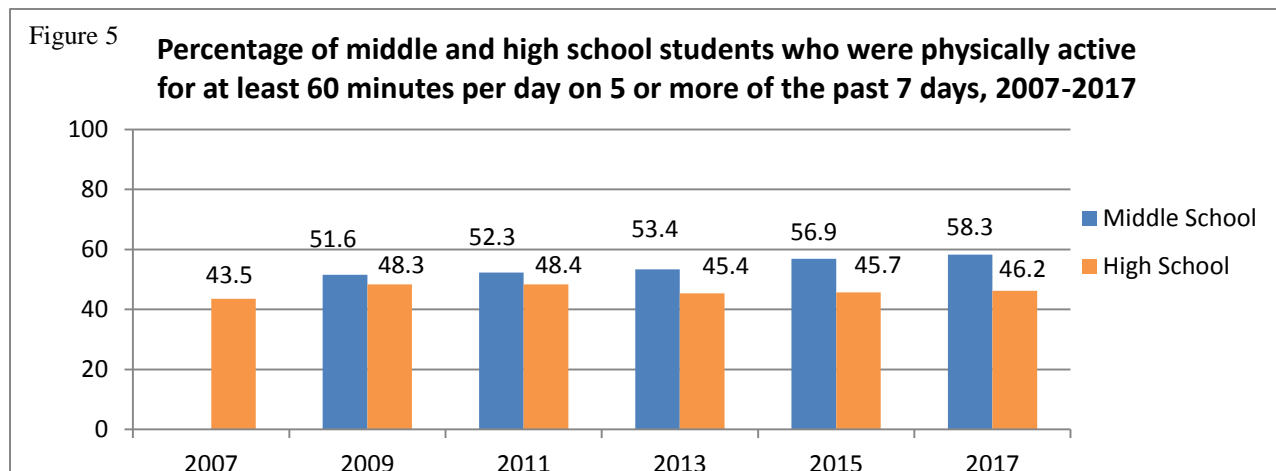
In 2017, 10.9 percent of middle school students and 14.6 percent of high school students did not eat breakfast on any of the past seven days (Figure 4). About forty five percent (45.3) of middle school students and 32.2 percent of high school students ate breakfast on all of the past seven days.



Physical Activity

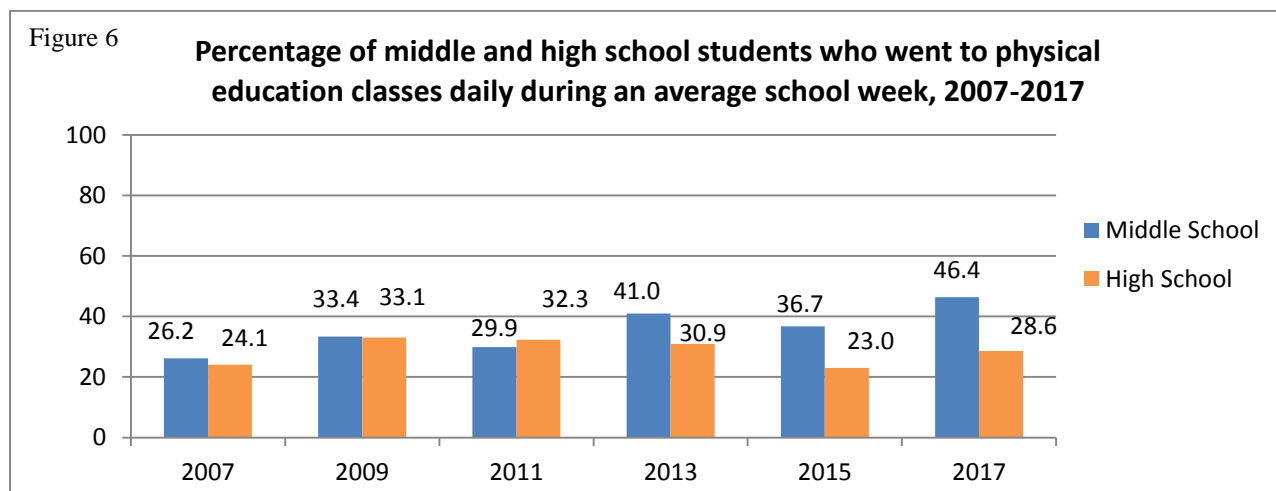
Participation in physical activity

The percentage of high school students who participated in any type of physical activity that increased their heart rate and made them breathe hard some of the time for at least 60 minutes per day on five or more of the past seven days increased significantly from 2007 to 2017 (Figure 5). Additionally, 47.6 percent of high school students and 62.7 percent of middle school students engaged in exercises to strengthen or tone muscles on three or more of the past seven days.



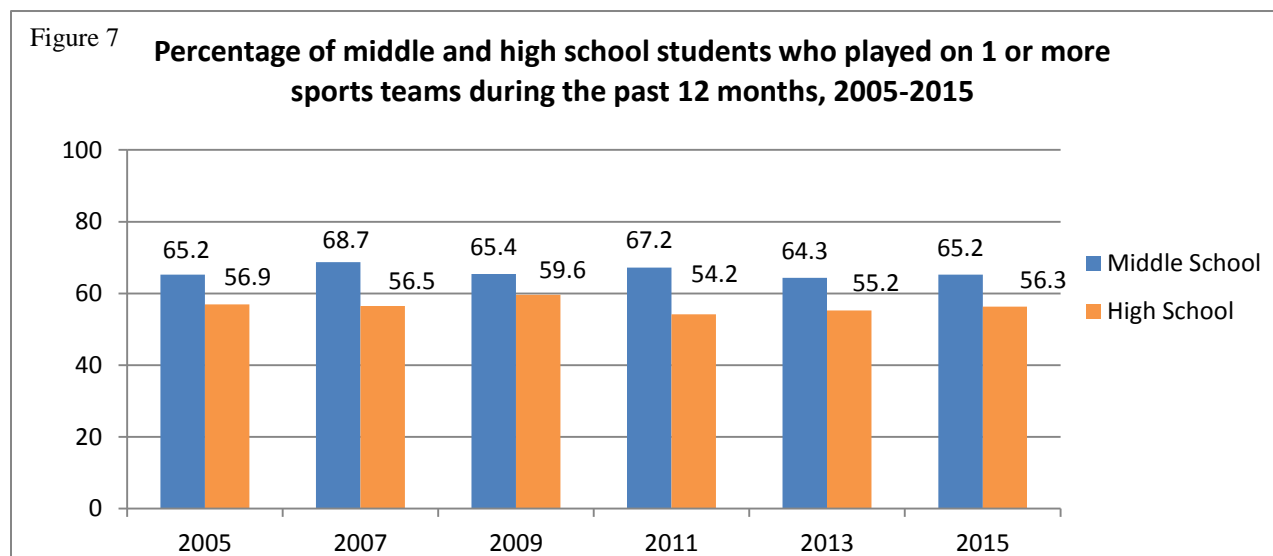
Participation in school physical education

Forty-six percent (46.4) of middle school students and 28.6 percent of high school students attended physical education class daily in an average week when they were in school in 2017. The percentage of middle school students who went to physical education classes daily increased significantly from 26.2 percent in 2007 to 46.4 percent in 2017 (Figure 6). Additionally, 25.2 percent of middle school students were provided a short physical activity break by their classroom teachers.



Participation on sports teams

Each year data shows that more than 60 percent of middle school students and 50 percent of high school students played on one or more sports teams during the past 12 months (Figure 7). Data were not available for 2017.



Note: Data were not available for 2017, question was not asked on the survey.

Television viewing and video game/computer usage on school days

Over the decade, a lower percentage of middle and high school students watched television on school days, while a higher percentage played video games or used a computer (Table 1). The percentage who watched television for three or more hours per day on an average school day decreased significantly from 29.6 percent in 2007 to 21.1 percent in 2017 among high school students and from 36.9 percent in 2007 to 24.4 percent in 2017 among middle school students. The percentage of middle school students that played video games or used a computer for three or more hours per day on a school day increased significantly from 25.9 percent in 2009 to 33.8 percent in 2017 and among high school students it increased significantly from 21.5 percent in 2007 to 42.3 percent in 2017.

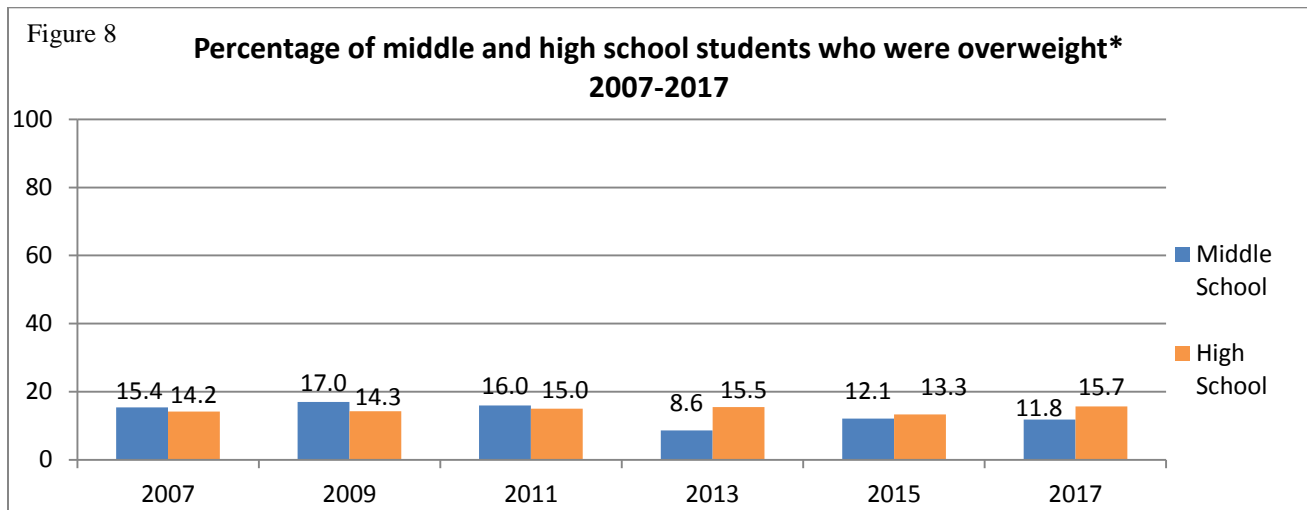
Table 1

Percentage of:	2007	2009	2011	2013	2015	2017
Middle school students that watched television three or more hours per day on an average school day	36.9	33.2	32.3	30.9	27.6	24.4
High school students that watched television three or more hours per day on an average school day	29.6	32.4	29.9	25.6	21.2	21.1
Middle school students that played video or computer games or used computer for other than school work for three or more hours per day on an average school day	N/A	25.9	27.1	29.8	31.8	33.8
High school students that played video or computer games or used computer for other than school work for three or more hours per day on an average school day	21.5	22.9	24.8	32.7	37.4	42.3

Overweight and Obesity

Overweight

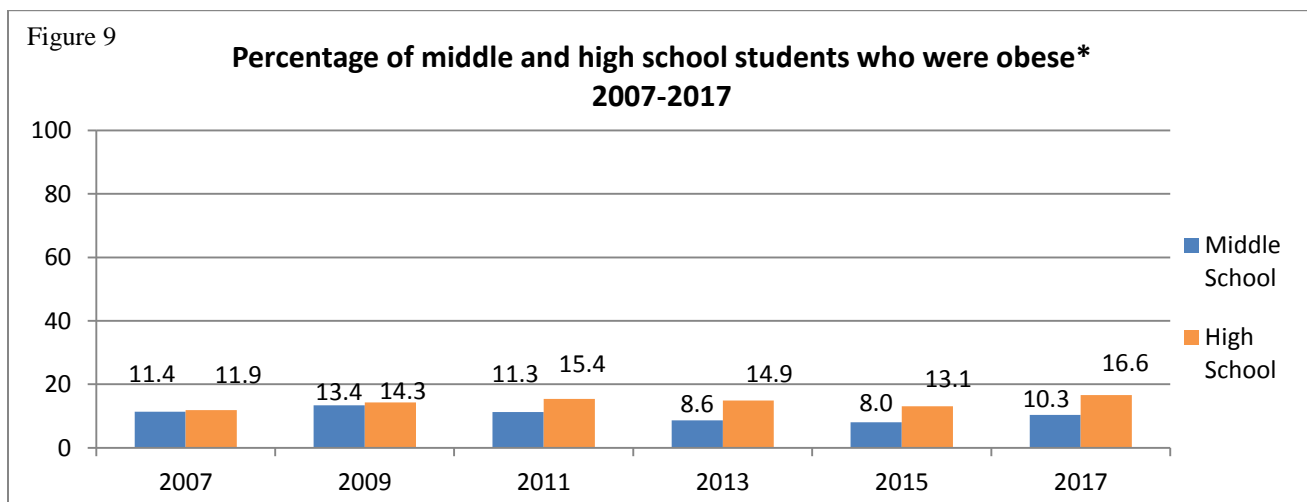
Almost twelve percent (11.8) of middle school students and 15.7 percent of high school students were overweight in 2017 (Figure 8). There was no significant change among students who were overweight from 2007 to 2017.



*Overweight for youth is defined as having a body mass index (BMI) between the 85th and 95th percentile on the CDC Growth Chart. BMI is calculated from self-reported height and weight.

Obesity

Ten percent (10.3) of middle school students and 16.6 percent of high school students were obese in 2017 (Figure 9). The percentage of high school students who were obese increased significantly from 11.9 percent in 2007 to 16.6 percent in 2017.

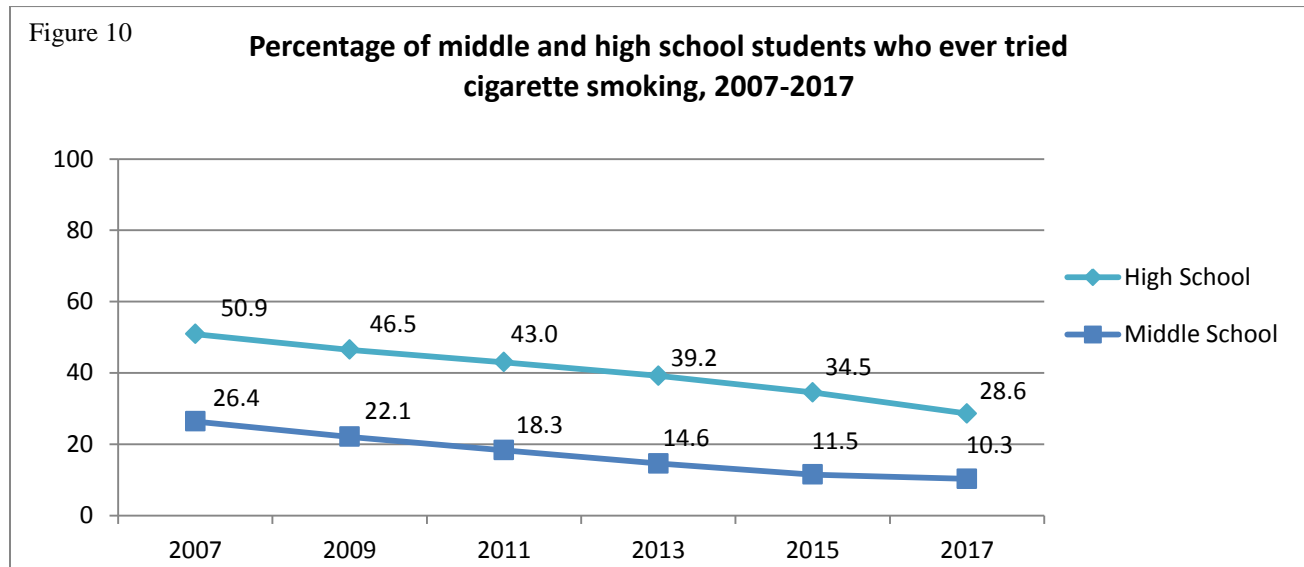


*Obese for youth is defined as having a BMI at or above the 95th percentile on the CDC Growth Chart

Cigarette Smoking

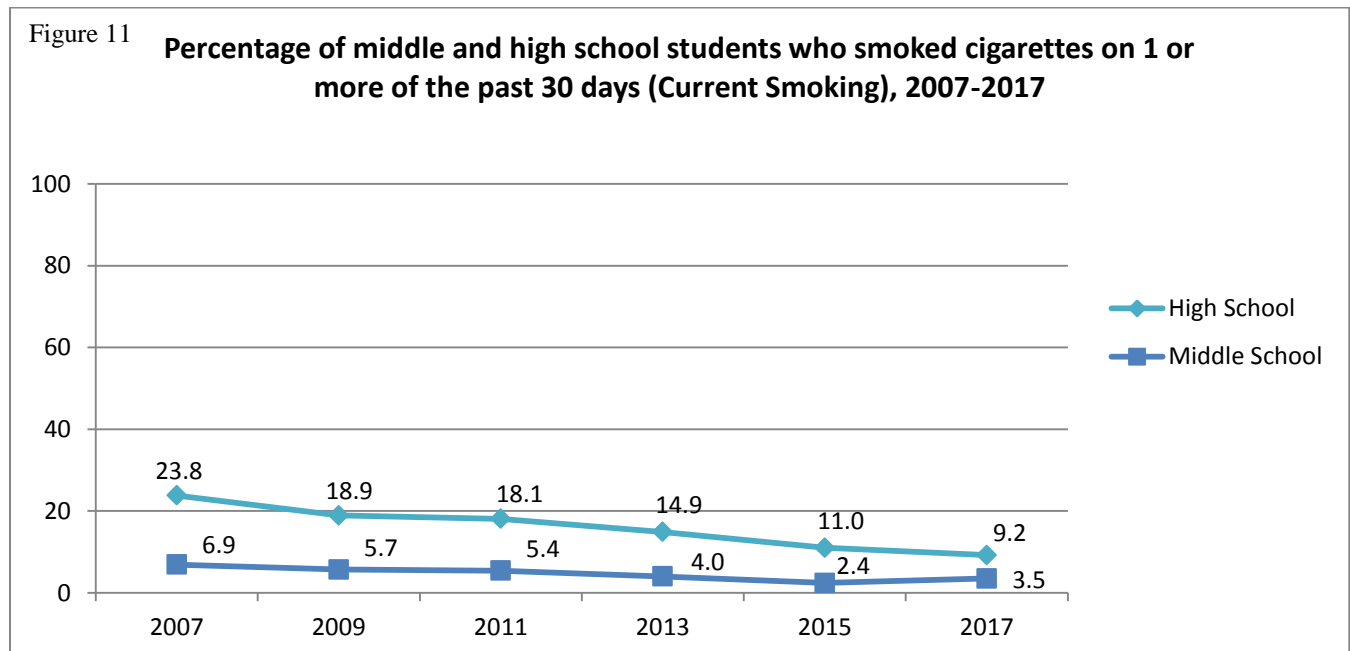
Ever tried cigarette smoking

The percentage of middle and high school students who ever tried smoking cigarettes declined significantly between 2007 and 2017 (Figure 10).



Current cigarette smoking

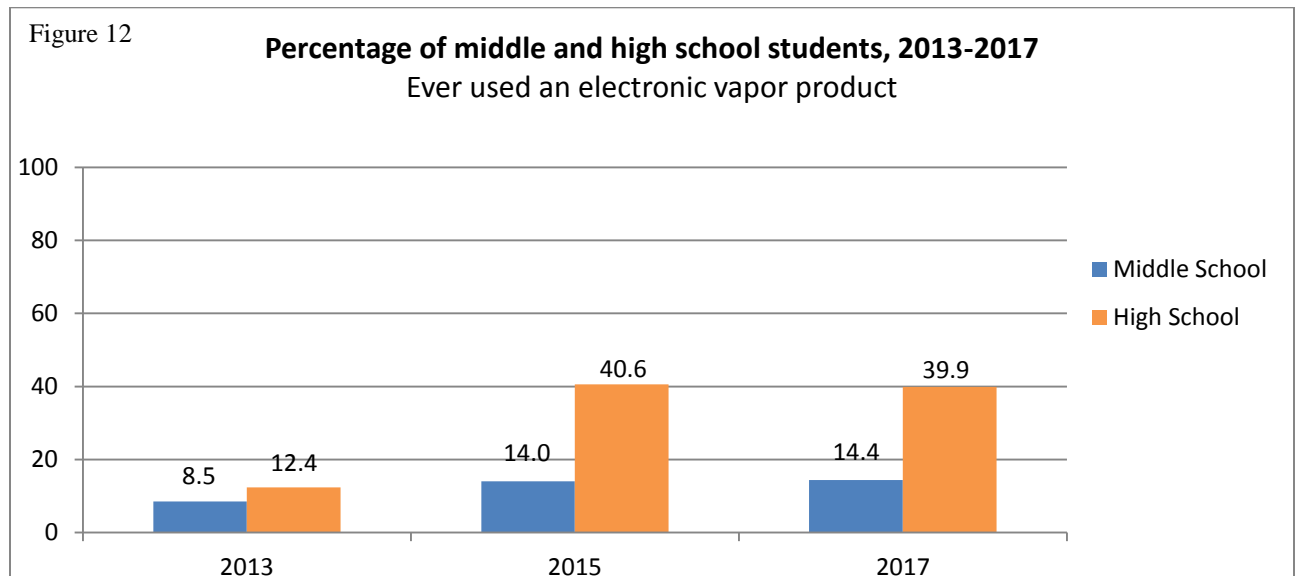
The percentage of middle and high school students who smoked cigarettes on one or more of the past 30 days declined significantly between 2007 and 2017 (Figure 11).



Electronic Vapor Products

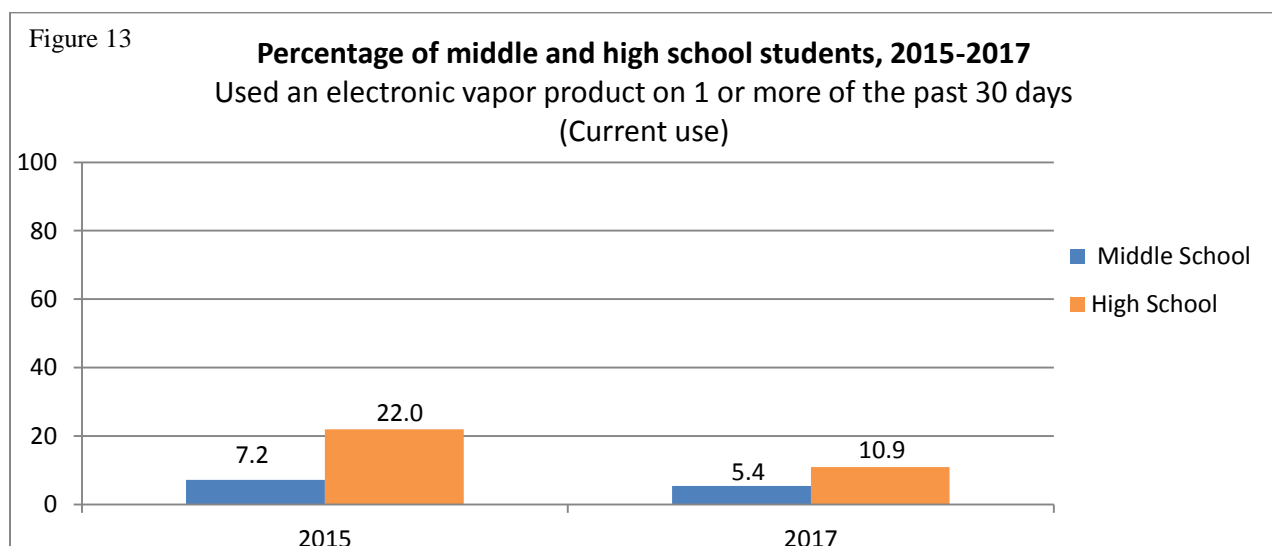
Ever tried electronic vapor product

There was a significant increase from 2013 to 2015 in the percentage of middle and high school students who had ever used an electronic cigarette or electronic vapor product. No significant change from 2015 to 2017 (Figure 12).



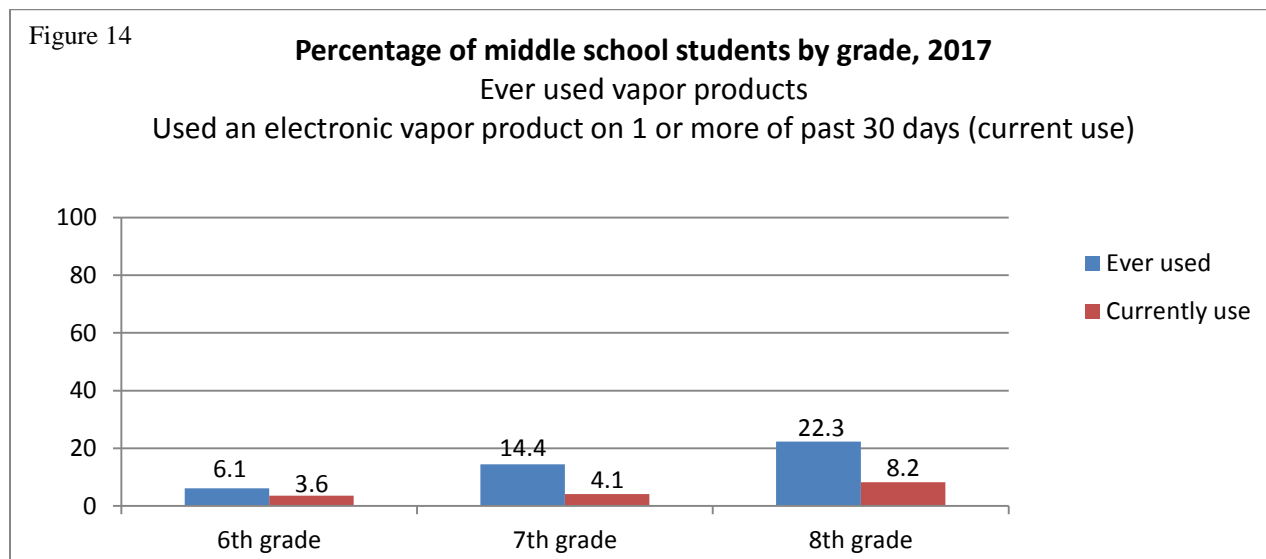
Currently use electronic vapor product

There was a significant decrease from 2015 to 2017 in the percentage of high school students who currently used an electronic vapor product on 1 or more of the past 30 days (Figure 13).



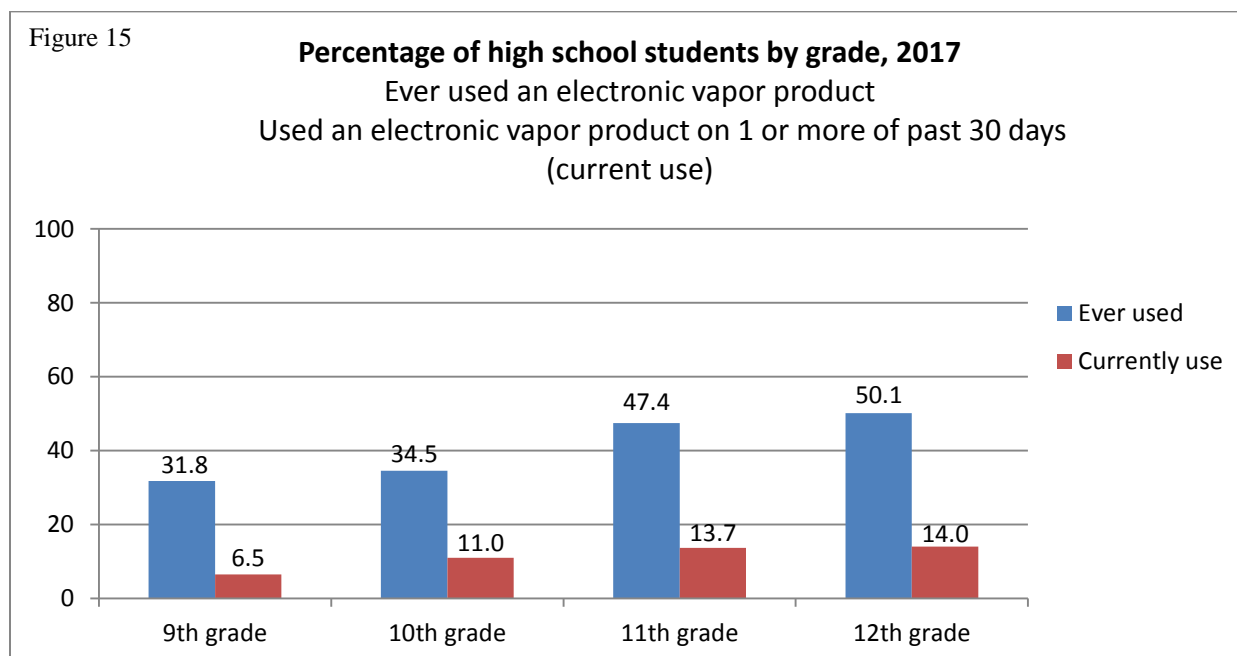
Middle school electronic vapor use

Almost one-quarter (22.3%) of 8th grade students had ever used an electronic vapor product in 2017 (Figure 14).

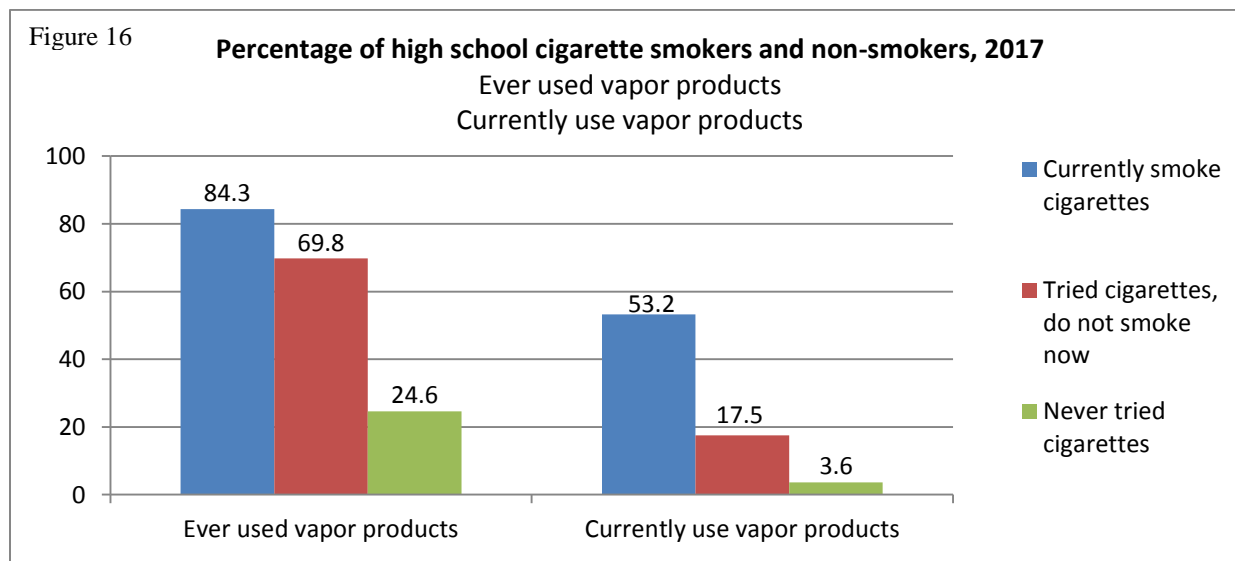


High school electronic vapor use

More than one-half (50.1%) of 12th grade students had ever used an electronic vapor product in 2017 and 14.0 percent currently used the products (Figure 15).



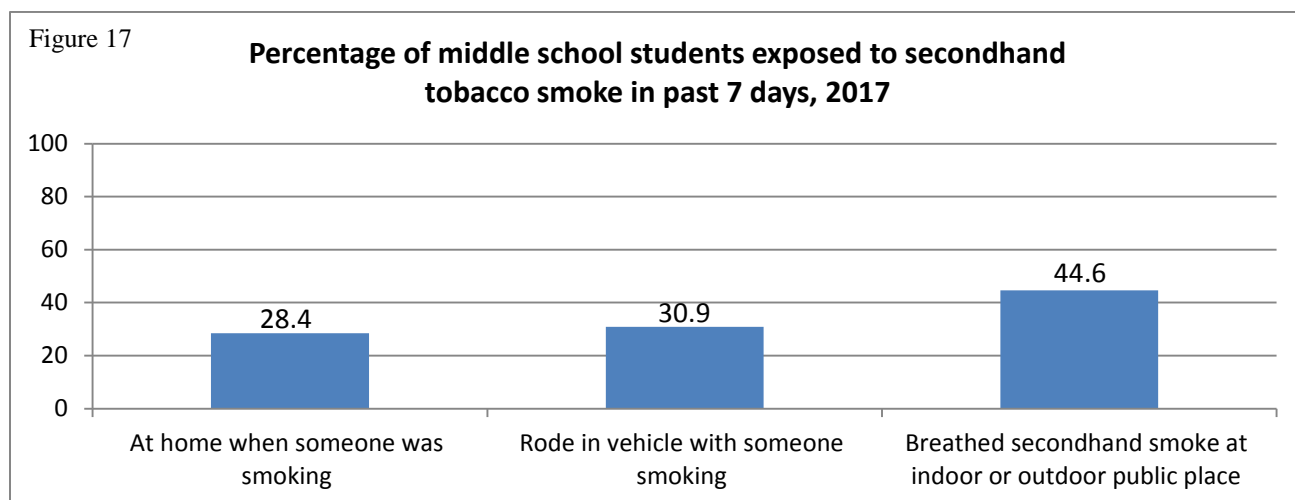
Among high school current cigarette smokers in 2017, 84.3 percent had ever used a vapor product and 53.2 percent currently used vapor products (Figure 16). Among students who had tried cigarettes but do not smoke now, 69.8 percent had ever used a vapor product and 17.5 percent were current vapor users. Among students who had never tried smoking cigarettes, 24.6 percent had tried vapor products and 3.6 percent currently used the products.



Exposure to Secondhand Tobacco Smoke

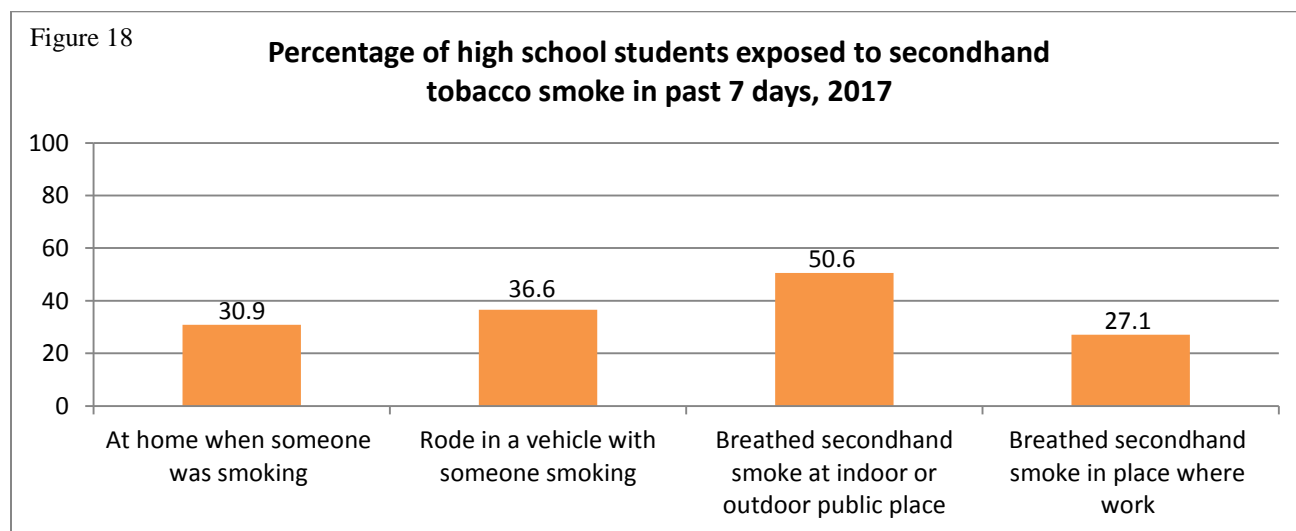
Middle School Students' Exposure

In 2017, almost one-half (44.6%) of middle school students were exposed to secondhand tobacco smoke while at an indoor or outdoor public place (such as school buildings, stores, restaurants, stadiums, school grounds, parking lots, stadiums and parks) during the past seven days (Figure 17). Almost one-third (30.9%) of middle school students rode in a vehicle with someone smoking, while 28.4 percent were exposed to secondhand smoke at home.



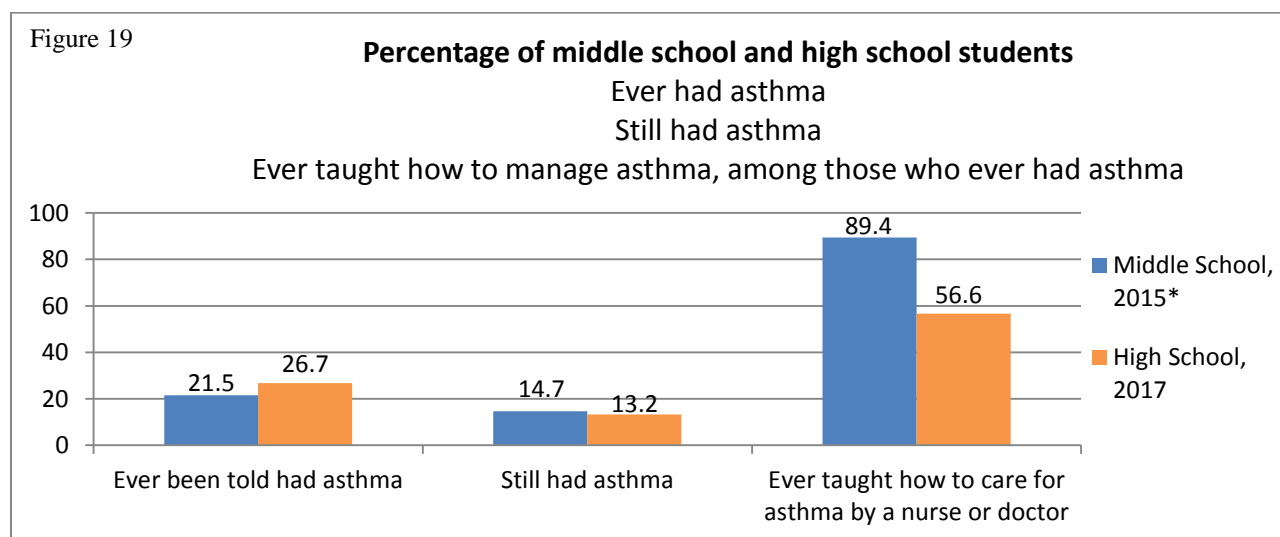
High School Students' Exposure

In 2017, more than one-third (36.6%) of high school students rode in a vehicle with someone smoking and about one-half (50.6%) breathed secondhand smoke at an indoor or outdoor public place (Figure 18). Twenty-seven (27.1) percent of students that worked breathed secondhand smoke at work on at least one of the past seven days.



Asthma

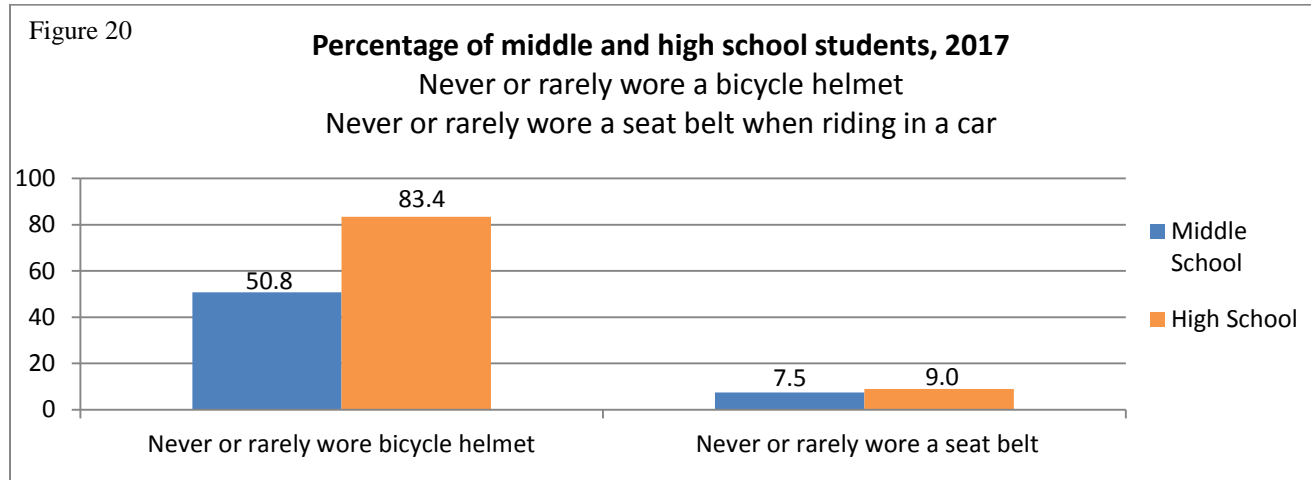
In 2015, 21.5 percent of middle school students and in 2017, 26.7 percent of high school students had ever been told by a doctor or nurse that they had asthma. Almost 15 percent (14.7) of middle school students and 13.2 percent of high school students still had asthma (Figure 19). Eighty-nine percent (89.4) of middle school students and 56.6 percent of high students who ever had asthma had been taught how to manage it by a doctor or nurse.



* Data were not available for 2017, question was not asked on the survey.

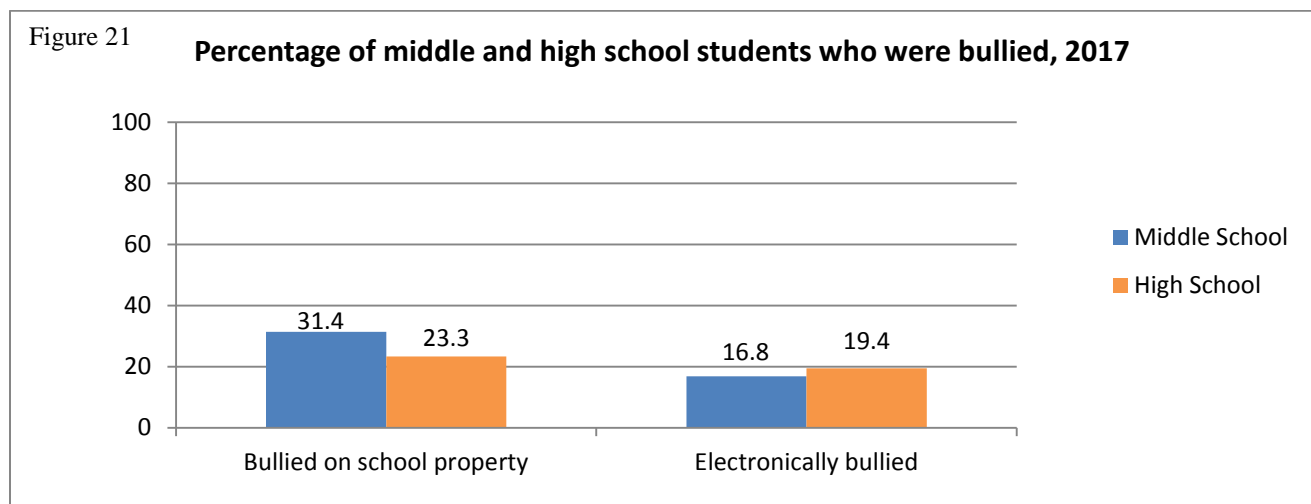
Bicycle Helmet and Seat Belt Use

In 2017, among students that rode a bicycle in the past 12 months, one-half (50.8%) of middle school students and 83.4 percent of high school students never or rarely wore a bicycle helmet (Figure 20). About eight percent (7.5) of middle school students and 9.0 percent of high school students never or rarely wore a seat belt when riding in a car driven by someone else. Also, among high school students that drove a car in 2017, 8.9 percent never or rarely wore a seat belt.



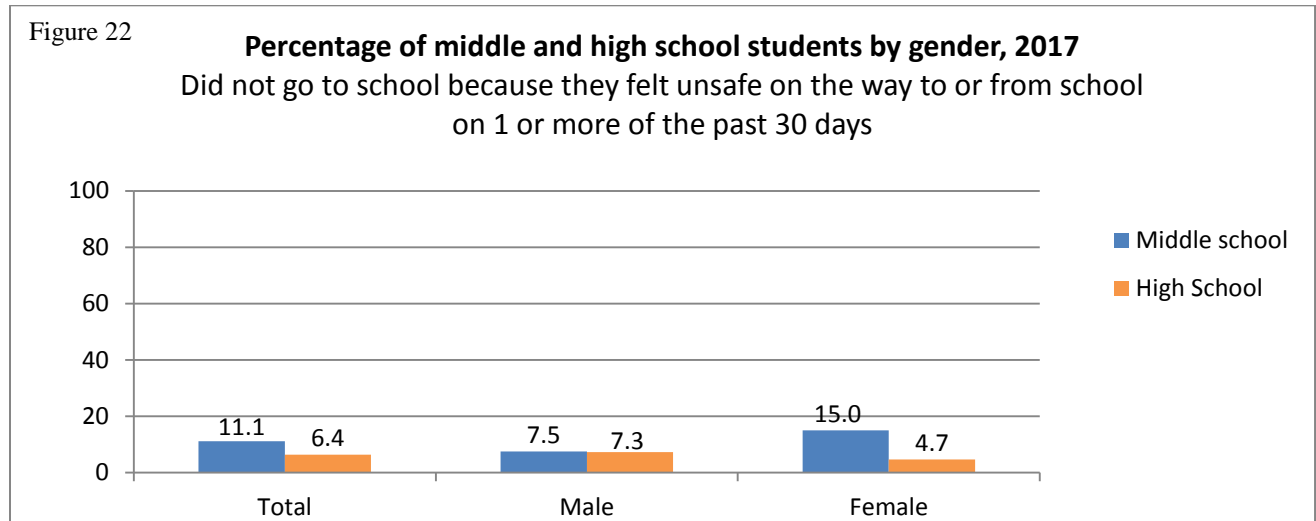
Bullying

In 2017, about one-third (31.4%) of middle school students and 23.3 percent of high school students were bullied on school property during the past 12 months (Figure 21). Almost seventeen percent (16.8) of middle school students and 19.4 percent of high school students were electronically bullied through e-mail, chat rooms, instant messaging, websites or texting.



Felt Unsafe Going to School

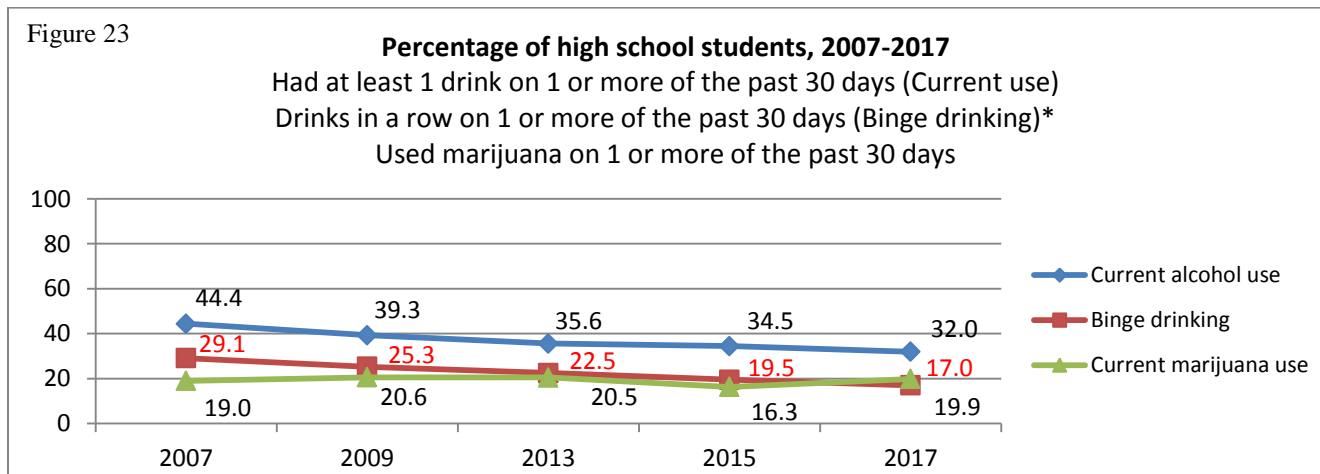
In 2017, a little more than six percent (6.4) of high school students and 11.1 percent of middle school students did not go to school on one or more of the past 30 days because they felt unsafe on the way to or from school (Figure 22). A statistically higher percentage of middle school females (15%) than males (7.5%) did not go to school because they felt unsafe on the way to or from school.



Health Risk Behaviors among Missouri High School Students

Alcohol and Marijuana Use

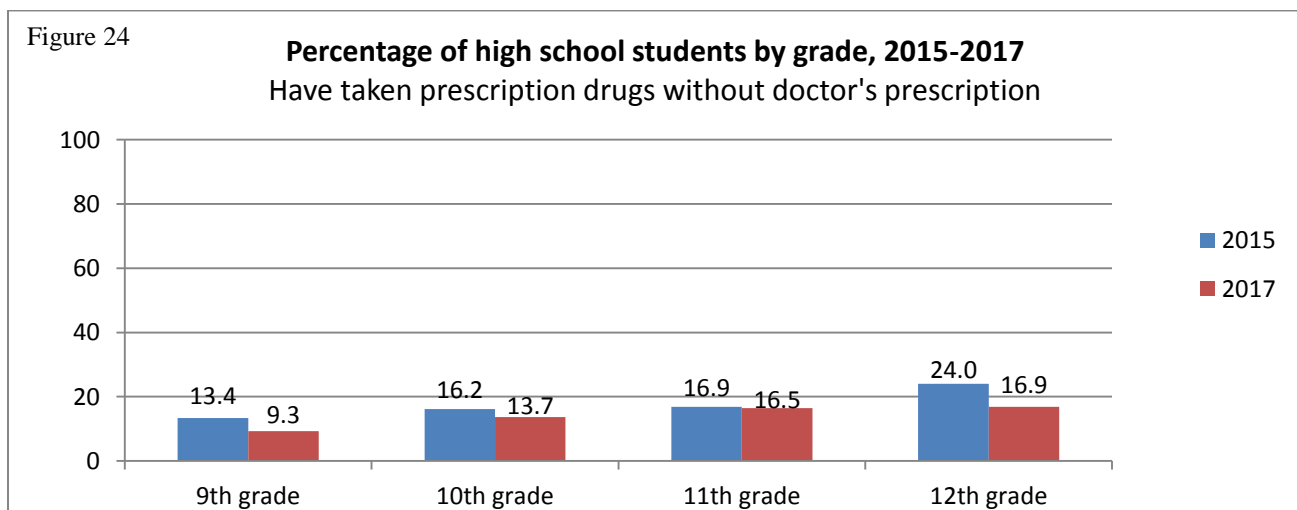
The percentage of high school students who had at least one drink of alcohol on one or more of the past 30 days declined significantly from 44.4 percent in 2007 to 32.0 percent in 2017 (Figure 23). Binge drinking also declined significantly from 29.1 percent in 2007 to 17.0 percent in 2017. Almost one in five (19.9%) high school students used marijuana consistently during the last decade. No data were available in 2011.



* Binge drinking: Having 5 or more drinks for males and 4 or more drinks for females

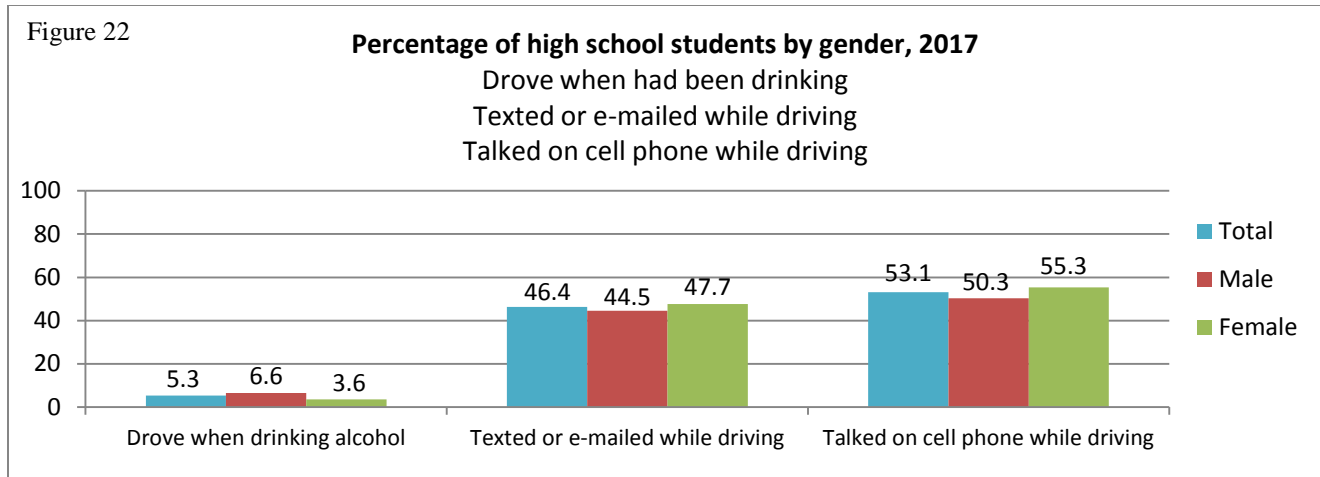
Prescription Drug Use

In 2015, high school students were asked for the first time about use of prescription drugs. The number of 12th graders who had ever taken prescription drugs without a doctor's prescription significantly declined from 2015 (24.0%) to 2017 (16.9%) (Figure 24).



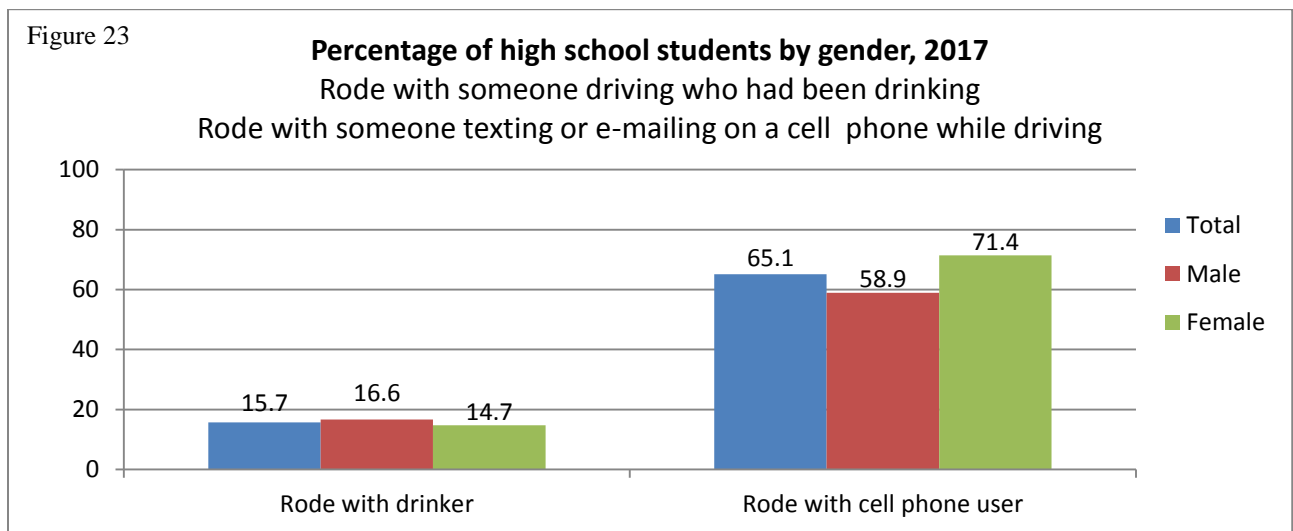
Driving while Drinking, Texting or E-mailing, and Talking on Cell Phone

In 2017, among students who drove a car or other vehicle during the past 30 days, 5.3 percent drove while drinking alcohol, 46.4 percent texted or e-mailed, and 53.1 percent talked on a cell phone one or more times during the past 30 days (Figure 22).



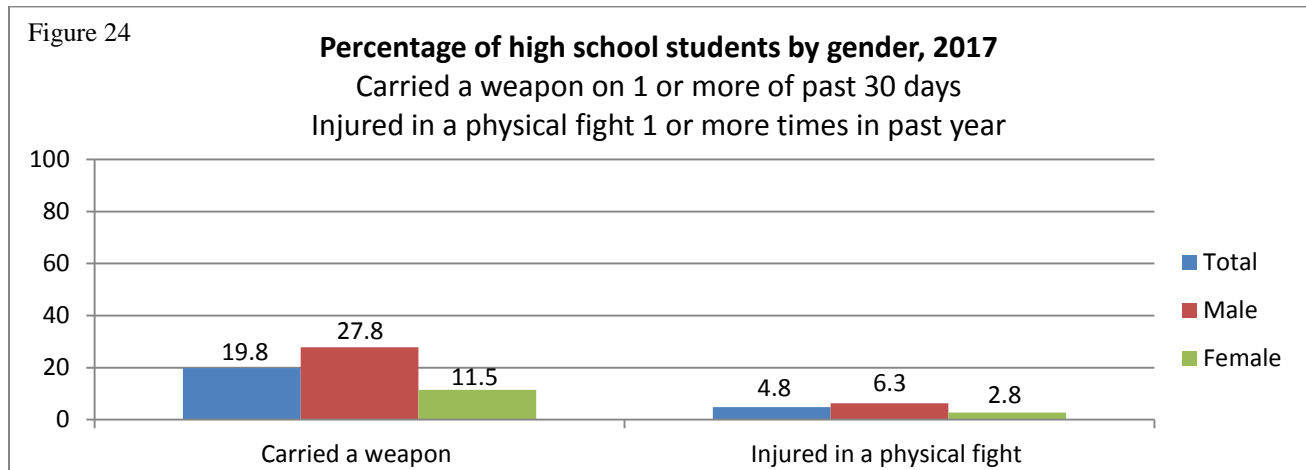
Rode with Someone who was Drinking or Using a Cell Phone while Driving

In 2017, 15.7 percent of high school students rode on one or more days of the past 30 days with someone driving who had been drinking alcohol (Figure 23). A significantly higher percentage of females (71.4%) than males (58.9%) rode with someone who was using a cell phone while driving on one or more of the past 30 days.



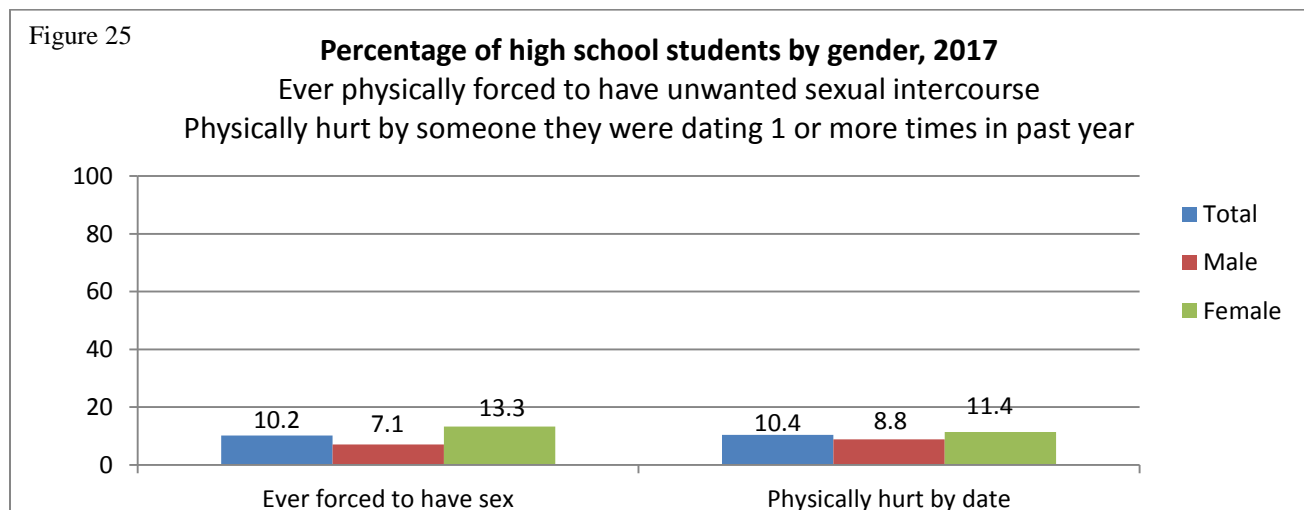
Weapon Carrying and Physical Fighting

In 2017, more than one-fourth (27.8%) of high school males carried a weapon on one or more of the past 30 days (Figure 24). Disproportionately a higher percent of high school males (6.3%) than females (2.8%) were injured in a physical fight one or more times in the past 12 months and had to be treated by a doctor or a nurse (Figure 24).



Forced Sexual Intercourse and Dating Violence

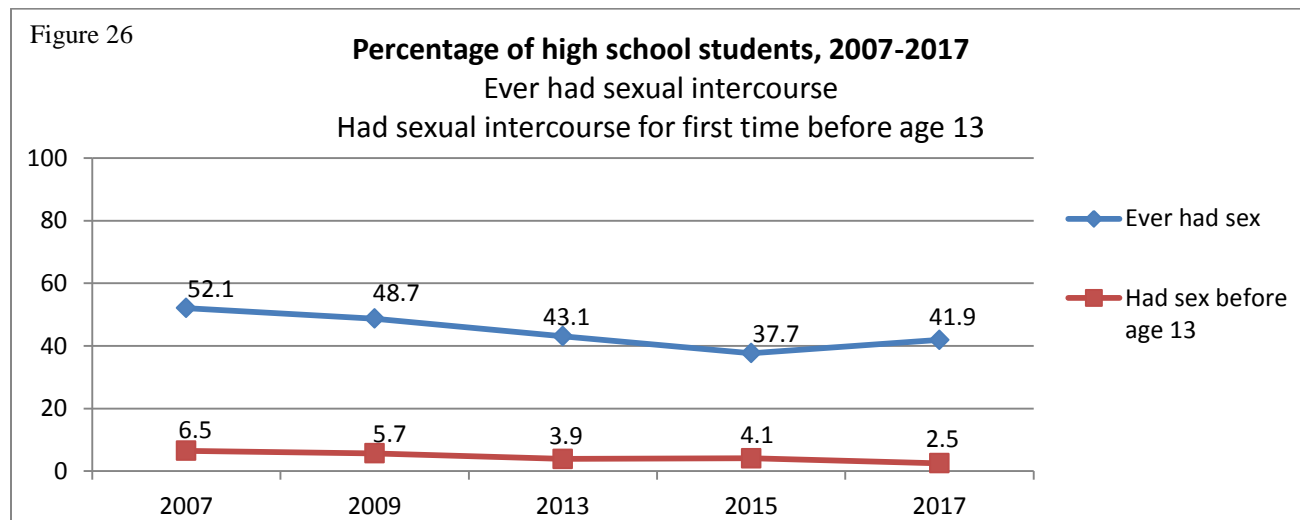
In 2017, a significantly higher percentage of high school females than males had ever been physically forced to have sexual intercourse that they did not want (Figure 25). Among students that dated or went out with someone in the past 12 months, 8.8 percent of males and 11.4 percent of females had been physically hurt by someone they were dating.



Sexual Intercourse

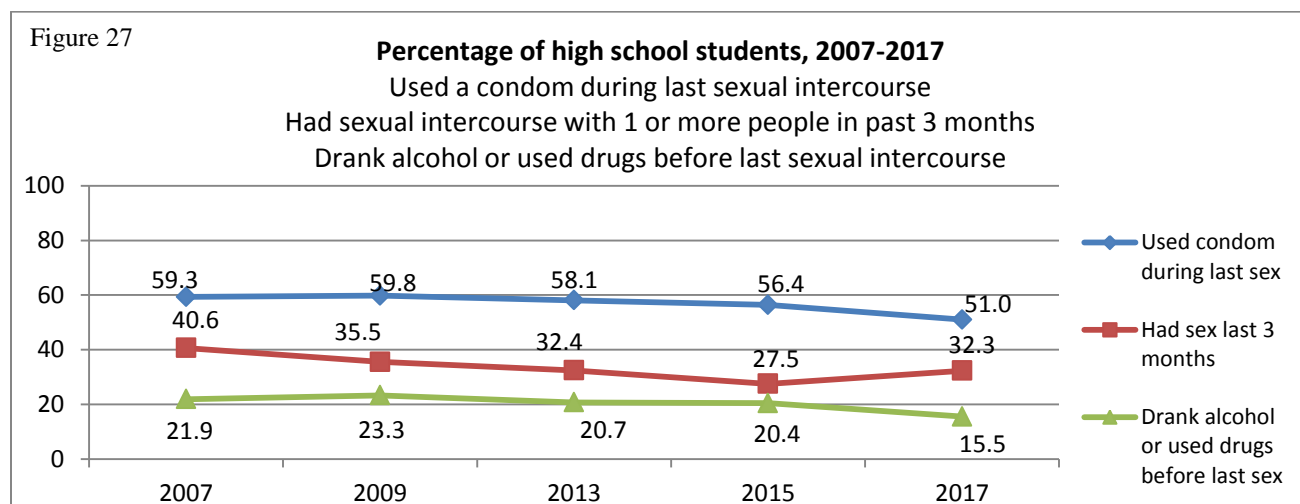
Ever had sexual intercourse and intercourse before age 13

The percentage of high school students who had ever had sexual intercourse declined significantly from 52.1 percent in 2007 to 41.9 percent in 2017 (Figure 26). The percentage of high school students who had sexual intercourse before age 13 also declined significantly from 6.5 percent in 2007 to 2.5 percent in 2017.



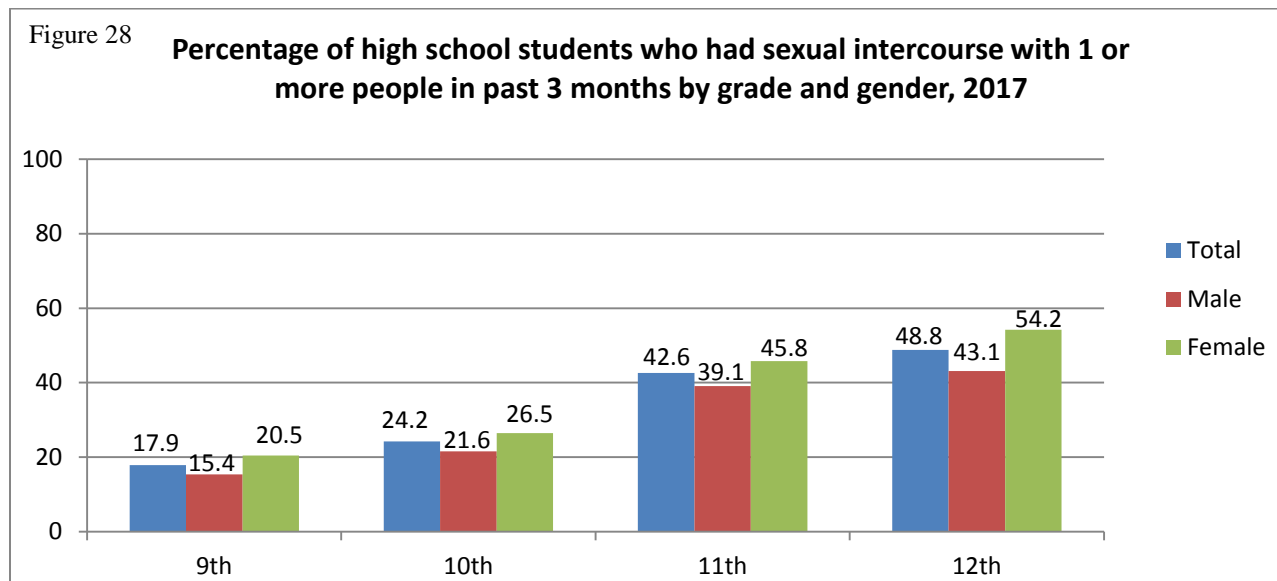
Current sexual intercourse, condom and alcohol use

The percentage of high school students who had sexual intercourse with one or more people during the past three months (current intercourse) declined significantly from 2007 to 2015 but increased significantly in 2017 from 2015 (Figure 27). The percentage of high school students that used a condom during last sexual intercourse, or drank alcohol or used drugs before last sexual intercourse declined significantly over the past decade.



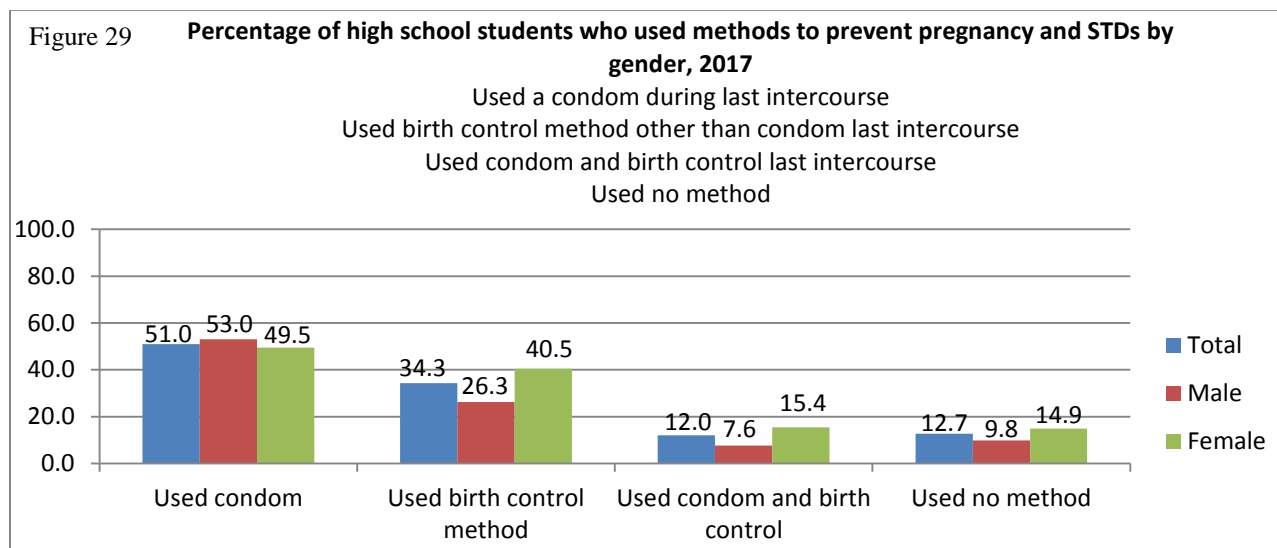
Current sexual intercourse

Almost 18 percent (17.9) of 9th graders and 48.8 percent of 12th graders had sexual intercourse with 1 or more people in the past 3 months. This indicates the higher the grade level, the greater the prevalence of having sexual intercourse (Figure 28).



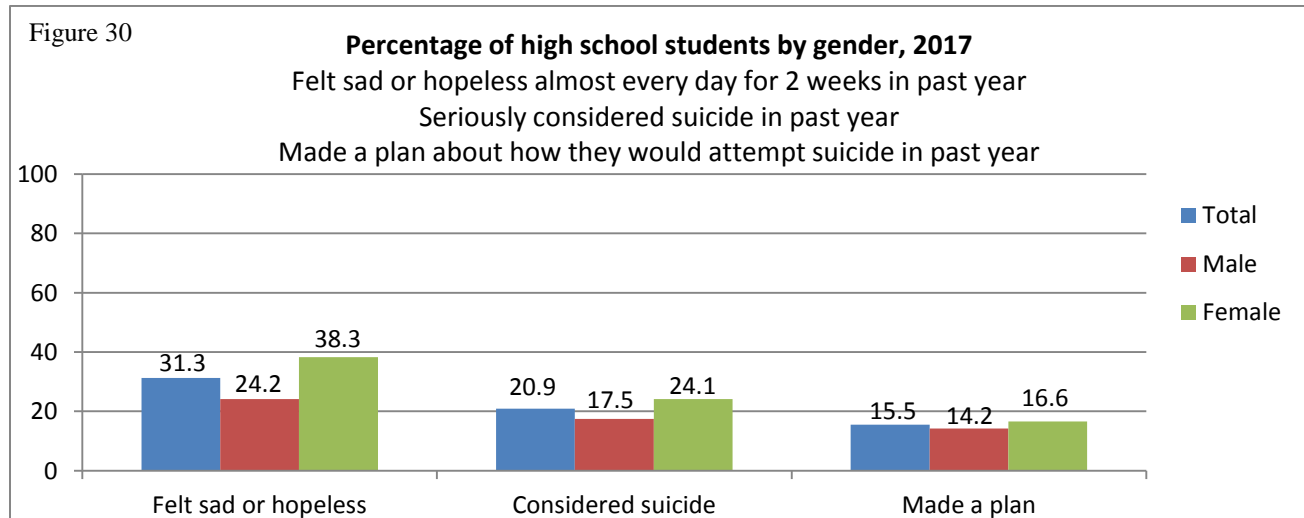
Condom and birth control use by students or their partner

In 2017, among high school students who had sexual intercourse in the past three months, 51.0 percent used a condom during last sexual intercourse to prevent pregnancy and sexually transmitted diseases (STDs), 34.3 percent used birth control methods other than condoms (e.g. pills, IUD or implant, shot, patch or ring) to prevent pregnancy, and 12.0 percent used both a condom and a birth control method to prevent STDs and pregnancy. Almost thirteen percent (12.7) percent did not use any method to prevent pregnancy or STDs during last intercourse. (Figure 29).

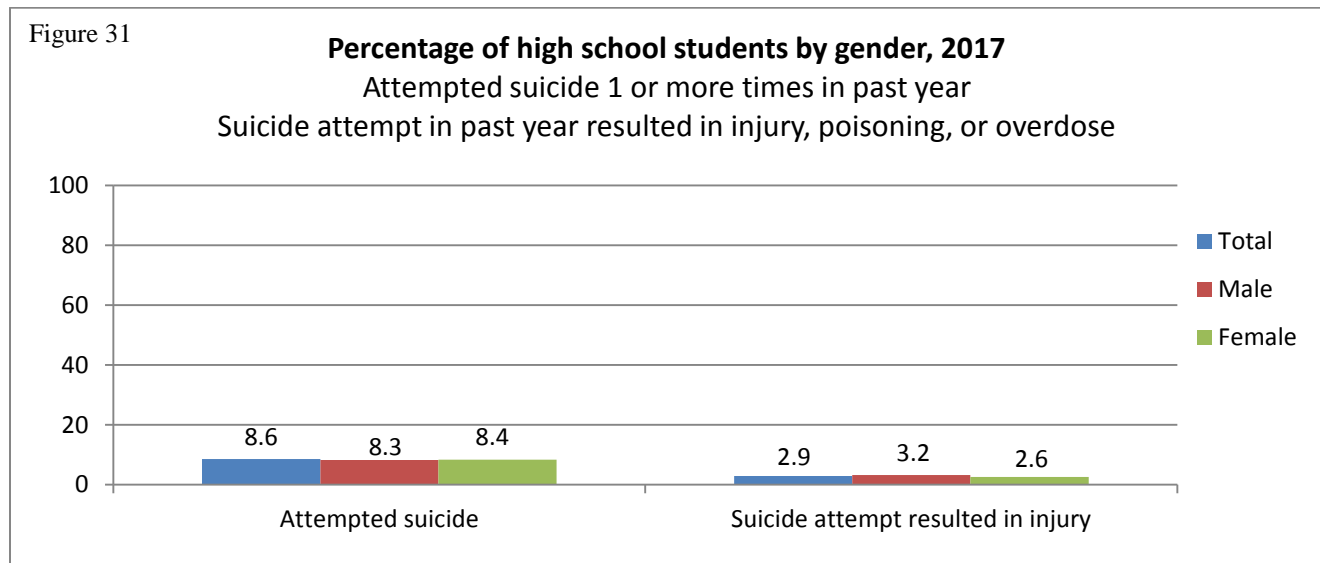


Depression and Suicide

In 2017, more than one-third (38.3%) of females felt so sad or hopeless almost every day for two weeks or more in a row during the past 12 months that they stopped doing some usual activities. About one-fourth (24.1%) of females seriously considered suicide and 16.6 percent made a suicide plan (Figure 30).

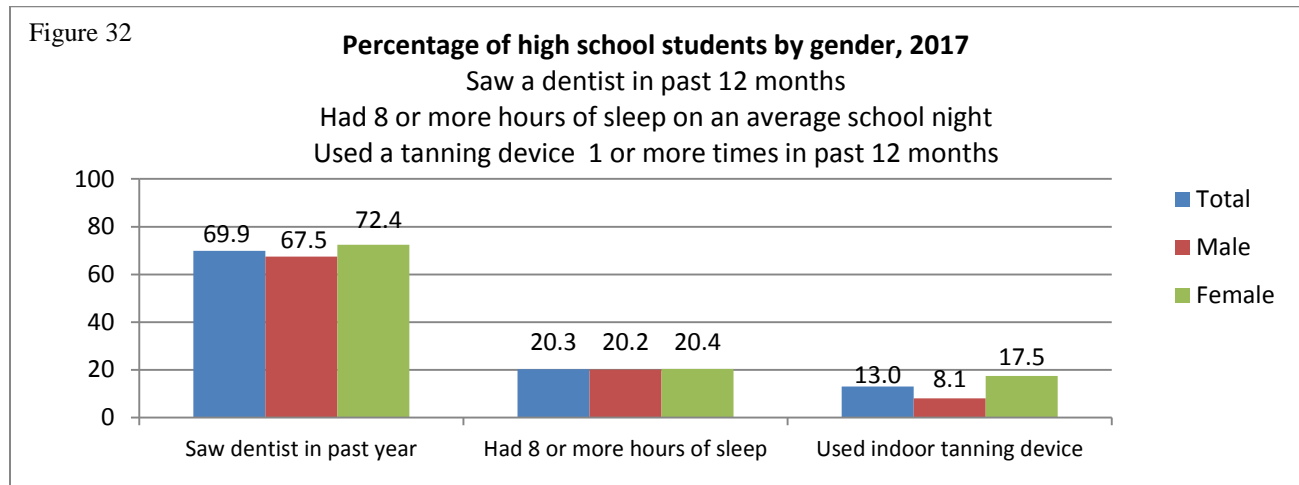


In 2017, 8.6 percent of high school students attempted suicide and about three percent (2.9) of students who attempted suicide had to be treated by a doctor for an injury, poisoning or an overdose (Figure 31).



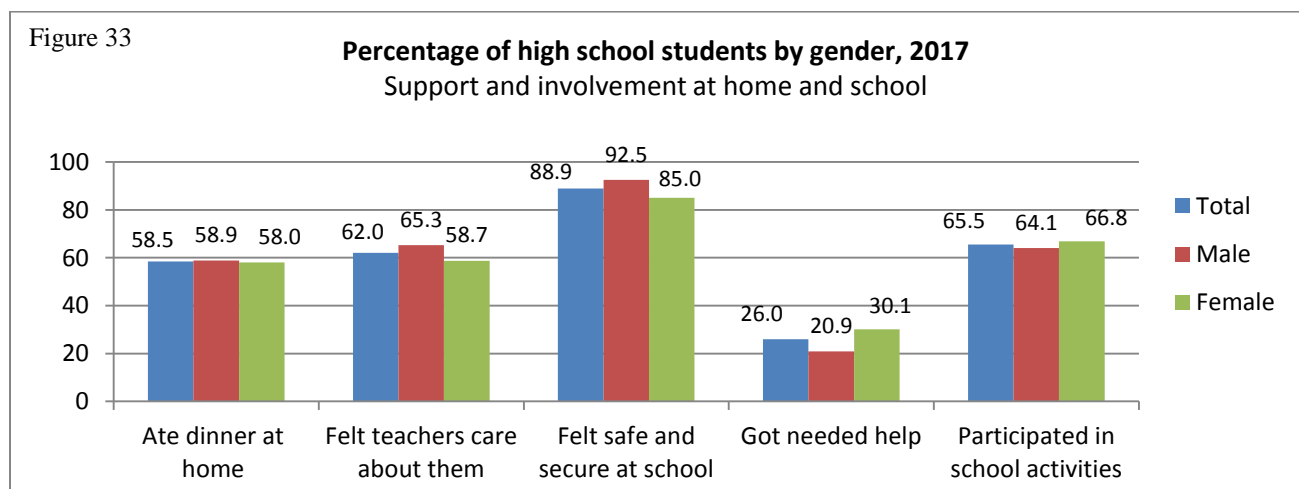
General Health Issues

In 2017, 69.9 percent of high school students had visited a dentist in the past 12 months, 20.3 percent had 8 or more hours of sleep on an average school night, and 13.0 percent had used an indoor tanning device one or more times in the past 12 months. The use of an indoor tanning device was more than double among females as compared to males (17.5% vs. 8.1%) (Figure 32).



Support and Involvement at Home and School

In 2017, the majority of high school students ate dinner at home with at least one parent on four or more of the past seven days, agreed or strongly agreed that teachers really cared about them, felt safe at school always or most of the time and participated in school activities one or more hours per week in an average school week (Figure 33). However, among students who felt sad, empty, hopeless, angry or anxious, only 26.0 percent got help when needed always or most of the time.



Survey methodology

The Missouri Youth Tobacco Survey (YTS) was conducted by the Missouri Department of Health and Senior Services (DHSS) with middle and high school students every odd-numbered spring from 2003 through 2011 and with middle school students only from 2013 through 2017. The Missouri Youth Risk Behavior Survey (YRBS) was administered by the Missouri Department of Elementary and Secondary Education (DESE) with high school students in odd-numbered springs from 1995 through 2011, and then by DHSS from 2013 through 2017.

Both paper and pencil surveys were supported by the CDC, which provided funding for survey administration, and performed school sampling, data tabulation, weighting and primary analysis. DHSS staff administered the surveys by obtaining participation of randomly selected schools, securing class schedules and randomly selecting classes for participation, providing survey materials to participating schools, and collecting and processing completed surveys for shipping to the CDC.

Sampling design

All regular and charter public schools in Missouri containing grades 6-8 in which 6th grade was not the highest grade in the building were included in the sampling frame for middle schools. Buildings containing grades 9-12 were included in the sampling frame for high schools. A two-stage cluster sample design was used to produce a separate representative sample of students for middle school and high school.

In the first-stage sampling, schools were randomly selected with probability proportional to the school enrollment size. In the second stage, systematic equal probability sampling with a random start was used to select classes from each school that participated in the survey. All classes in the selected schools were included in the second-stage sampling frame. All students in the selected classes were eligible to participate in the survey. School and student participation was anonymous and confidential. Passive parental permission was utilized unless the school district required active permission.

Response rates

Response rates were calculated by multiplying the school participation rate by the student participation rate for middle schools and high schools. The response rate must be equal to or greater than 60 percent for data to be weighted to adjust for unequal probability selection of each student and to reduce bias by compensating for differing patterns of non-response.

Sufficient responses for weighting the data have been obtained each year the YTS was conducted in Missouri. In 2017, 33 of 42 (78.6 percent) sampled middle schools participated with 1,813 of 1,957 (91.8 percent) sampled middle school students completing usable questionnaires. The overall response rate was 72.8 percent.

Sufficient responses for weighting the data have been obtained each year the YRBS was conducted in Missouri, except in 2011. In 2017, 28 of 39 (71.8 percent) sampled high schools and 1,864 of 2,199 (84.8 percent) sampled high school students completed usable questionnaires. The overall response rate was 60 percent.